

## Additions to the Crane flies of California

(Diptera: Tipulidae)

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The volume entitled "The Crane Flies of California" by the present author, was published in 1967 by the University of California Press.<sup>1</sup> Somewhat more than 450 species were included, and during the intervening period, numerous collections from the state have been studied and additions to the list have been made. At this time I am describing a few further species that were collected by Donald G. Denning, have added the additional species that were made to the basic list during this period, and have indicated two important changes in species names. I wish to thank Doctor Denning for the many crane flies that he has sent to me in the past that included several records of special importance.

### **Rhabdomastix (Sacandaga) brevicellula**, new species

General coloration of head and thorax light yellow, praescutum and scutum patterned with light brown; wings with abundant trichia on vein  $R_4$ ; veins  $R_{1+2}$  and  $R_3$  approximated at costa, the distance between them about one-third vein  $R_3$ ; cell *1st*  $M_2$  unusually short and broad, the second section of vein  $M_{1+2}$  about one-fifth longer than the cell width.

Male.—Length about 5.5 mm.; wing 6 mm. Rostrum and antennal scape clear light yellow; palpi broken. Antennae with pedicel and flagellum black, proximal flagellar segments subglobular to short-oval, outer segments progressively more oval; outer segments with a single elongate verticil that is longer than the segment. Head clear light yellow.

Pronotum clear light yellow, narrowly pale brown medially. Mesonotal praescutum light yellow, with four light brown stripes, the intermediate pair nearly confluent, ending some distance before the suture; posterior sclerites yellow, each scutal lobe with two confluent light brown areas, posterior half of postnotal mediotergite similarly light brown. Pleura light yellow, ventral sternopleurite and meron broadly light brown. Halteres yellow. Legs with coxae yellow, fore pair slightly darker; trochanters yellow; remainder of legs broken. Wings light yellow, without darkened pattern; veins very pale brown. Macrotrichia on  $R$  and outer longitudinal veins, including about 20 over the whole length of  $R_4$ ; veins  $R_5$ , 2nd and outer sections of  $M_{1+2}$ ,  $M_3$  and  $M_4$  with complete series of trichia; very sparse scattered trichia on outer section of  $Cu_1$  and outer ends of both Anal veins, *1st*  $A$  with a single trichia, *2nd*  $A$  with two or three. Venation (Fig. 1) as shown;  $Sc_1$

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<sup>1</sup> Alexander, C. P. The Crane Flies of California. Bulletin of the California Insect Survey. Volume 8, pp. 269; 524 figures, 1 plate, 106 maps. University of California Press, Berkeley; November 27, 1967.

ending about opposite two-thirds to three-fourths  $R_3$ ; distance on costa between veins  $R_{1+2}$  and  $R_3$  about one-third the latter vein; cell *1st*  $M_2$  unusually short and broad, as shown, the second section of  $M_{1+2}$  about one-fifth longer than the breadth of the cell.

Abdomen, including hypopygium, chiefly yellow, faintly patterned with brown, more evident on outer segments. Male hypopygium (Fig. 4) as shown.

Holotype male, CALIFORNIA, MONTEREY COUNTY, Highway 128 at NORTH FORK of NARRARO RIVER, July 6, 1975 (D. G. Denning).

The most similar regional species is *Rhabdomastix (Sacandaga) trichophora* Alexander (California, Oregon, Washington) which similarly has trichia on vein  $R_4$  of the wings, differing from the present fly most evidently in venation, including the wide separation of veins  $R_{1+2}$  and  $R_3$  at costa and the longer cell *1st*  $M_2$ .

### ***Hesperoconopa anthracina*, new species**

General coloration of entire body black, certain areas more pruinose; halteres brownish black, base of stem restrictedly yellowed; legs black; wings strongly darkened throughout, stigma not differentiated; abdomen black, sternites slightly more pruinose.

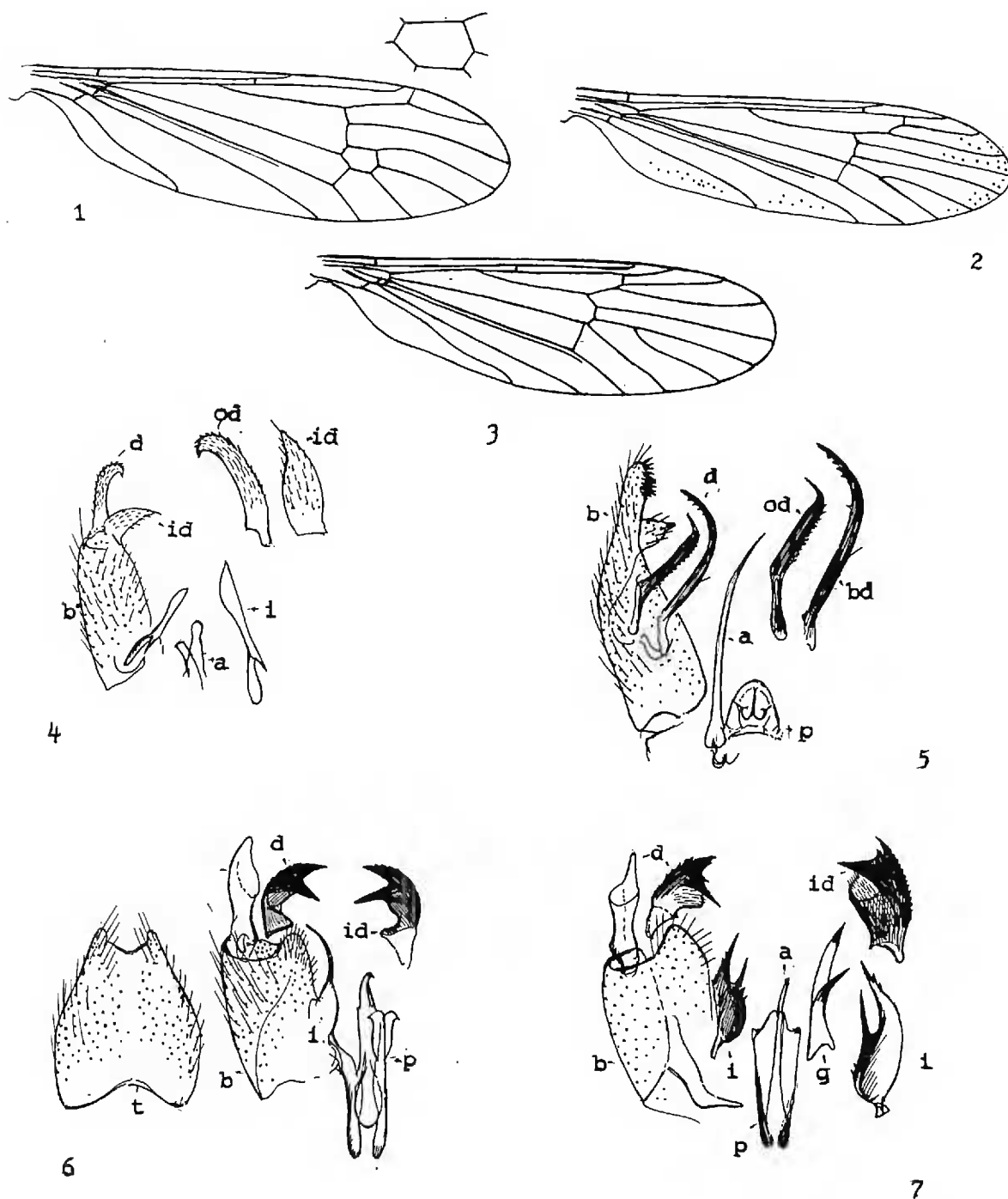
Female.—Length about 5.3 mm.; wing 5.8 mm.; antenna about 1.1 mm. Rostrum and palpi black. Antennae black; flagellar segments subcylindrical, ends truncated, subequal in length to the longest verticils. Head brownish gray; eyes small; anterior vertex broad.

Thorax dull black, praescutum with vague still darker stripes, central area of scutum and the scutellum slightly more pruinose. Pleura dark gray, ventral sclerites slightly more darkened. Halteres brownish black, base of stem restrictedly yellowed. Legs with coxae and trochanters black, slightly pruinose; remainder of legs black. Wings (Fig. 2) strongly darkened throughout, stigma not differentiated; narrow whitened lines over veins  $M$ ,  $M_{1+2}$ ,  $M_{3+4}$  and *1st*  $A$ ; veins light brown,  $Sc$ ,  $R$ ,  $M_3$  and  $Cu$  darker. Outer wing cells from  $R_3$  to  $M_3$  with scattered trichia punctures, with further series in cells *1st*  $A$  and *2nd*  $A$  as indicated in the figure. Venation as shown;  $R_{2+3}$  about one-half longer than  $R_2$ ;  $m-cu$  at fork of  $M$ .

Abdomen blackened, sternites slightly more pruinose. Ovipositor with cerci slender, outer ends slightly upcurved.

Holotype, female, CALIFORNIA, EL DORADO COUNTY, SOUTH FORK OF AMERICAN RIVER, July 17, 1975 (D. G. Denning).

Generally similar to *Hesperoconopa melanderi* (Alexander), likewise from California, differing chiefly in the darker body coloration and especially the more blackened wings. I believe that the male sex when discovered will provide further hypopygial differences. The very distinct aquatic immature stages of *Hesperoconopa* have been described and figured by C. Dennis Hynes (Pan-Pacific Entomologist, 44: 324–327, 4 figs.; 1968).



FIGS. 1-7. Fig. 1. *Rhabdomastix (Sacandaga) brevicellula* sp.n.; venation. Fig. 2. *Hesperoconopa anthracina* sp.n.; venation. Fig. 3. *Ormosia (Ormosia) denningi* sp.n.; venation. Fig. 4. *Rhabdomastix (Sacandaga) brevicellula* sp.n.; male hypopygium. Fig. 5. *Molophilus (Molophilus) spiniapicalis* sp.n.; male hypopygium. Fig. 6. *Ormosia (Ormosia) denningi* sp.n.; male hypopygium. Fig. 7. *Ormosia (Ormosia) loretta* sp.n.; male hypopygium.

Symbols: *a*, aedeagus; *b*, basistyle; *bd*, basal dististyle; *d*, dististyle; *g*, gonapophysis; *i*, interbase; *id*, inner dististyle; *od*, outer dististyle; *p*, phallosome; *t*, tergite.

**Molophilus (Molophilus) spiniapicalis**, new species

Allied to *distilobatus*; general coloration of thorax light brown, abdomen dark brown; legs with femora yellow, tarsi brown; male hypopygium with mesal lobe of basistyle long-extended, narrowed outwardly, the aggregation of blackened spinoid setae opposite or beyond the apices of the dististyles, the subtending lobe broad, with numerous setae.

Male.—Length about 4–4.3 mm.; wing 4.5–5.2 mm. Rostrum and palpi black. Antennae (broken at fifth segment) with scape and pedicel obscure yellow, flagellum black; flagellar segments oval, more elongate outwardly, verticils long. Head blackened, gray pruinose.

Pronotum and pretergites light yellow. Mesonotal praescutum light brown, humeral region vaguely more yellowed; scutum brown, scutellum obscure yellow; postnotum dark brown to brownish black. Pleura yellowish brown to dark brown, dorsopleural region still darker. Halteres with stem yellow, knob light brown, apex more yellowed. Legs with coxae and trochanters yellow; femora yellow, tibiae more obscure yellow, tarsi brown. Wings with prearcular and costal fields light yellow, including the veins, remainder more whitish gray; veins brown, trichia black.

Abdomen dark brown. Male hypopygium (Fig. 5) generally as in *distilobatus*, differing in details, especially of the basistyle. Mesal lobe of basistyle, *b*, long-extended and narrowed, the aggregation of blackened spinoid setae lying opposite or beyond the apices of the dististyles, the subtending lobe broad, with numerous setae. Aedeagus, *a*, long and slender, extended into a long spine.

Holotype male, CALIFORNIA, MONTEREY COUNTY, PLASKETT CREEK CAMPGROUND, July 25, 1975 (D. G. Denning). Paratopotype, ♂. Paratype, ♂, California, without further data, August 22, 1966 (C. Dennis Hynes).

The most similar species is *Molophilus (Molophilus) distilobatus* Alexander (Washington to California). The distinctive male hypopygium of this is discussed and figured in the Crane Flies of California, p. 148, fig. 514.

**Ormosia (Ormosia) denningi**, new species

General coloration of head and thorax dark gray, mesonotal praescutum with a narrow dark brown median line; wings light brown, stigma darker brown; abdomen brownish black; male hypopygium with tergite large, narrowed outwardly to the shallowly concave apex; inner dististyle black, outwardly divided into two strong spines, the outer one slightly broader, the margin microscopically roughened; basistyle with interbase a simple long slender blackened spine.

Male.—Length about 6 mm.; wing 5.5 mm. Rostrum and palpi black. Antennae (male) broken at fourth segment, scape and pedicel light brown, flagellum black; proximal two flagellar segments elongate, broadest basally, narrowed to the outer end, the antenna when entire evidently relatively long. Head brownish gray.

Thorax almost uniformly dark gray, mesonotal praescutum with a narrow dark brown central line, behind almost attaining the suture. Halteres light brown, outer half of knob dark brown. Legs with coxae obscure yellow, trochanters somewhat clearer yellow; remainder of legs broken. Wings (Fig. 3) light brown,



stigma conspicuously darker brown, wing cells before the stigma slightly more yellowed; veins dark brown. Venation almost as in *burneyana*; left wing of type mounted on slide, with a long subterminal spur near outer end of vein  $R_4$ , not reaching the margin, the right wing normal.

Abdomen brownish black, sparsely pruinose. Male hypopygium (Fig. 6) with the tergite, *t*, large, broadest across base, gradually narrowed outwardly to the shallowly concave apex, outer lateral angles produced into small pale oval lobes that are provided with abundant microscopic setae. Outer dististyle, *od*, simple, broadest at near midlength, narrowed outwardly into an obtuse point; inner style, *id*, distinctive, black, widened outwardly, divided into two strong spines, the outer one broader, microscopically roughened. Basistyle, *b*, with interbase, *i*, a simple long slender blackened spine, the base dilated.

Holotype male, CALIFORNIA, MONTEREY COUNTY, PLASKETT CREEK CAMPGROUND, July 25, 1975 (D. G. Denning).

I take pleasure in naming this interesting fly for Dr. Donald G. Denning, distinguished student of the Trichoptera, to whom I am indebted for many Tipulidae from the western United States. The nearest relative is *Ormosia (Ormosia) burneyana* Alexander, likewise from California, which differs chiefly in hypopygial structure, including the tergite, basistyle and inner dististyle. The male hypopygium of this species was figured in the California Bulletin, p. 144, fig. 481. The structure of the inner dististyle also is generally similar to that of the unrelated *Molophilus (Molophilus) fenderi* Alexander, also of western North America.

### ***Ormosia (Ormosia) loreta*, new species**

Antennae of male elongate; body dark brownish gray, abdomen dark brown; male hypopygium with the inner dististyle blackened, terminating in a major spine; basistyle with the interbase distinctive, with two long blackened spines; phallosome with gonapophysis bispinous.

Male.—Length about 5.5 mm.; wing 6 mm. Rostrum and palpi black. Antennae broken beyond the fourth segment, elongate, if entire apparently extending to the wing root or slightly beyond, black; basal flagellar segments elongate, with very long erect setae, the longest nearly equalling the segment. Head dark gray.

Prothorax dark brownish gray. Mesonotal praescutum chiefly covered by four grayish brown stripes, interspaces scarcely indicated, each with a row of microscopic setigerous punctures; pseudosutural foveae and tuberculate pits black, conspicuous; posterior sclerites of notum dark brown. Pleura brownish gray, dorsopleural membrane light yellow. Halteres with stem obscure yellow, knob brownish black. Legs with coxae obscure yellow, bases of middle pair narrowly darkened; trochanters light yellow; remainder of legs broken. Wings light brown, cells basad of the dark brown stigma light yellow, beyond the stigma less evidently brightened; cells *C* and *Sc* slightly darker than the ground; veins dark brown. Venation:  $Sc_1$  ending shortly beyond level of  $R_2$ ;  $R_s$  straight, slightly longer than vein  $Sc_1$ ; cell  $M_2$  open by atrophy of  $M_3$ ; *m-cu* shortly before fork of *M*; vein *2nd A* with distal third slightly arcuated.

Abdomen dark brown. Male hypopygium (Fig. 7) with the important structures as shown. Inner dististyle, *id*, blackened, expanded outwardly, terminating in a long triangular point, with two smaller more dorsal spines. Basistyle, *b*, with a modified interbasal structure, *i*, as shown, terminating in an elongate spine with two microscopic spinules on outer margin, on inner face with a comparable long slender spine. Phallosome, *p*, including the small slender aedeagus and the gonapophyses, *g*, that appear as a straight yellow spine that bears a long black lateral rod at near midlength.

Holotype, ♂, California, Santa Cruz County, Watsonville, on Highway 152, August 1, 1975 (D. G. Denning).

I take pleasure in naming this species for Mrs. Donald Denning, Loretta. There are several allied and generally similar species in western North America that have been discussed and figured in the California Bulletin, such including *Ormosia (Ormosia) burneyana* Alexander, *O. (O.) burneyensis* Alexander, *O. (O.) denningi* sp.n., *O. (O.) legata* Alexander, *O. (O.) pleuracantha* Alexander, and some others.

#### SPECIES NEW TO CALIFORNIA LIST

*Tipula (Trichotipula) frommeri* Alexander. Great Basin Naturalist, 33: 189-192; 1973. California, Riverside County, Deep Canyon, Desert Research Center, May 15, 1969, Saul Frommer.

*Tipula (Trichotipula) sanctaecruzae* Alexander. Great Basin Naturalist, 33: 192-193; 1973. California, Santa Cruz Island, Channel Islands, 1941 (Eric Remington).

*Tipula (Lunatipula) hastingsae diperona* Alexander. Great Basin Naturalist, 33: 193; 1973. California, Santa Cruz Island, Channel Islands, University of California Research Station, Canada del Medio, April 1970 (Eric Remington).

*Tipula (Lunatipula) mecotrichia* Alexander. Great Basin Naturalist, 26: 2-3; 1966. California, Fresno County, Kings Canyon, June 1, 1963 (Alexander).

*Dicranota (Dicranota) bernardinensis* Alexander. Great Basin Naturalist, 24: 4; 1966, California, San Bernardino County, Thurman Flats, Mill River, May 1, 1963 (Alexander).

*Dicranota (Rhaphidolabis) nooksackensis* Alexander. American Midland Naturalist, 42: 300-301; 1949. Washington (type); Oregon, Alaska. California, Eldorado County, South Fork of American River, July 17, 1975 (Denning).

*Dactylolabis (Dactylolabis) postiana* Alexander. Pan-Pacific Entomologist, 20: 94-95; 1944. Oregon (types). California, Shasta County, March 31, 1968 (Denning).

*Dactylolabis (Eudactylolabis) vestigipennis* Alexander. Bull. Brooklyn Ent. Soc., 45: 45-46; 1950. Types from the Tucson Mountains, Pima County, Arizona, February and March 1937 (Owen Bryant). California, Los Angeles Co., February 10, 1967 (David Rentz); San Bernardino County, near Cajon Pass, at edge of Mohave Desert, March 1967 (Rentz). For a more detailed account, see Rentz and Gagné, Ent. News, 78: 261-262; 1967.

*Idiognophomyia enniki* Alexander. Pan-Pacific Entomologist, 50: 279-281, 3 figs.; 1974 (adult). George W. Byers, the same, 50: 282-287, figs. 1-15 (larva and pupa); 1974. Types from Ventucopa, western Ventura County, Los Padres

National Forest. Larvae and pupae were found by Dr. Franklin Ennik in decaying *Yucca* near U. S. Highway 399 on April 9, 1974.

CHANGES IN NAMES  
(Trichoceridae)

*Diazosma hirtipennis* (Siebke) (1863)

*Diazosma subsinuata* Alexander; North American Catalogue, p. 15; 1965. Crane Flies of California, p. 13; 1967.

*Diazosma hirtipennis* Siebke; Christine Dahl, Opuscula Entomologica, 31: 97; 1966.

(Tipulidae)

*Ormosia* (*Ormosia*) *affinis* (Lundbeck)

*Rhypholophus affinis* Lundbeck; Diptera Groenlandica. Vidensk. Medd. nat. hist. Copenhagen, p. 266, plate VI, fig. 17 (wing); 1898.

*Ormosia manicata* (Doane), as *Rhypholophus*; Jour. N. Y. Ent. Soc., 8: 187; September 1900. See Bo Tjeder, 1970 Entomologiske Meddelelser, 38: 253-256, 4 figs. (male hypopygium) for detailed synonymy. Synonymy of *manicata* given by Alexander in California Bulletin, p. 145.

Changes in generic and subgeneric names.

*Limnophila* (*Euphylidorea*) Alexander, Ent. News, 83: 32; 1972.

Four species of *Limnophila* (*Phylidorea*) in Craneflies of California, p. 112, *aequiatra* Alexander, *brevifilosa* Alexander, *burdicki* Alexander, and *flavipila* Doane are transferred to the new subgenus *Euphylidorea*, cited above.

*Erioptera* (*Hespererioptera*) Alexander, Ent. News, 35-36; 1972, new subgenus for *Erioptera oregonensis* Alexander, California Bulletin, p. 135.

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## RECENT LITERATURE

RÉVISION DE LA TRIBU DES RHODOPININI GRESS. DE LA RÉGION ASIATO-AUSTRALIENNE (COLEOPTERA, CERAMBYCIDAE), PREMIÈRE PARTIE. S. Breuning. 70 pages plus 7 photographs on 2 plates, 21 cm × 30 cm page, spiral bound. "Imprimé en Xerocopie" by Sciences Nat, 45 rue des Alouettes, 75019 Paris. "Copyright: SCIENCES NAT 1975." Price about US \$10.

This publication provides a key and brief descriptions to the 75 genera (4 are new, with also 3 new subgenera) for the area considered. Keys are provided to the species if there is more than one included species in a genus. 231 species are briefly described, of which 12 are new. The 7 photographs mounted on 2 pages include illustrations of 3 Pic types.—PAUL H. ARNAUD, JR.